

REMARKS

Claims 1-48 were pending in the application prior to the present amendment.

Claims 2, 11, 14, 22 and 43 are herein cancelled.

Claims 1, 10, 13, 15, 17, 19, 21, 23, 25 and 42 are herein amended.

Thus, claims 1, 3-10, 12-13, 15-21, 23-42 and 44-48 will be pending in the application after entry of the present amendment.

Claims 6 was rejected under 35 U.S.C. Section 112, as failing to comply with the written description requirement. In particular, the Examiner states that:

The claim recites, “said repeating uses an experimental design algorithm to generate combinations” while in the specification there is not any explanation of what “an experimental design algorithm” means.

Applicant notes that one of ordinary skill in the art would not fail to understand what is meant by “experimental design algorithm” since the subject of experiment design is well known.

Claims 1, 3-9, 10, 12-13, 15-16, 21, 24-30, 42 and 44-47 were rejected under 35 U.S.C. Section 101. Applicant respectfully disagrees with these rejections. However, in order to expedite the case towards allowance, Applicant has amended each of these claims to include a step similar to the step of “storing the data output from the one or more simulation engines to a memory”.

Claims 1-7, 9-25, 27-31, 42-44 and 46 were rejected under 35 U.S.C. 102(b) as being anticipated by TERAS Evaluation Module User Guide (hereinafter referred to as TERAS).

Claim 8 was rejected under 35 U.S.C. Section 103(a) as being unpatentable over TERAS in view of Joshi et al. (hereinafter referred to as Joshi).

Claims 26, 47 and 48 were rejected under 35 U.S.C. Section 103(a) as being unpatentable over TERAS in view of what the Examiner deems to be Applicants admitted prior art.

Claims 45 was rejected under 35 U.S.C. Section 103(a) as being unpatentable over TERAS in view of Ortoleva (U.S. Pub. 2002/0013687 A1).

Applicant respectfully traverses these rejections based on the following reasoning.

Claim 1 recites:

“executing one or more simulation engines on the workflow to generate data output ... wherein at least one of the one or more simulations engines is a physics-based reservoir flow simulator”.

This feature is never suggested by TERAS. TERAS never suggests simulating the flow of fluids in a reservoir. Thus, Claim 1 and its dependents are patentably distinguished over the cited art at least for this reason. Claims 10, 13, 17, 19, 21 and 42 each recite a similar feature. Thus, each of these claims and their dependents are patentably distinguished over the cited art based on the same reasoning.

Claim 31 recites:

A method comprising:

receiving user input to assemble a first case comprising models and planning variables;

receiving user input to assemble a second case based on the first case;

storing the first case, the second case and differences between the first case and second case in a memory medium;

displaying an indication of the first case, second case, and a parent child relationship between the first case and second case;

conditionally displaying the differences between the first case and second case in response to a user request.

TERAS never suggests “storing the first case, the second case and differences between the first case and second case in a memory medium” as recited in claim 31. The Examiner relies on TERAS page 4, first paragraph and third paragraph as evidence for

the anticipation of this feature. However, these paragraphs do not mention anything about storing cases or difference between cases.

Furthermore, TERAS never suggests “displaying an indication of the first case, second case, and a parent child relationship between the first case and second case” as recited in claim 31. The Examiner relies on the “Decision Trees” section of page 137 and the “Analyzing Output” section of page 4 as evidence for the anticipation this feature. However, these sections do even remotely suggest displaying a parent child relationship between a first case and a second case. Thus, claim 31 is patentably distinguished over the cited art.

Claim 48 recites:

A method comprising:

- (a) receiving user input characterizing a set of planning variables associated with a set of models;
- (b) generating instantiated values of the planning variables;
- (c) assembling a first input data set using a first subset of the instantiated values and a first subset of the set of models, and assembling a second input data set using a second subset of the instantiated values and a second subset of the set of models;
- (d) determining well perforation locations for wells in the first input data set, and appending the well perforation locations to the first input data set;
- (e) determining instantiated schedules using a third subset of the instantiated values and a third subset of the models, and appending the instantiated schedules to the first input data set and the second input data set;
- (f) executing a reservoir flow simulator on the first input data set to generate flow data for oil, gas and water and appending the flow data to the second input data set;
- (g) executing an economic computation engine on the second input data set to generate economic output data;
- (h) storing the instantiated values of the planning variables, the flow data and the economic output data to a storage medium in a relational database format; and
- (i) repeating (b), (c), (d), (e), (f), (g) and (h) until a termination condition is achieved.

In particular, claim 48 recites “determining well perforation locations for wells in the first

input data set”. The Examiner relies on page 2, lines 5-10 and 20-23 of Applicant specification as evidence for the anticipation of this feature. These paragraphs of the specification read as follows:

The establishment of the wells and facilities of the petroleum production system involves a series of capital investments. The establishment of a well may involve investments to drill, perforate and complete the well. The establishment of a facility may involve a collection of processes such as engineering design, detailed design, construction, transportation, installation, conformance testing, etc. Thus, each facility has a capital investment profile that is determined in part by the time duration and complexity of the various establishment processes. (2/5-10)

A person planning a petroleum production enterprise with respect to a set of reservoirs may use a reservoir simulator (such as the VIP simulator produced by Landmark Graphics Corporation) to predict the oil, gas and water production profiles of a petroleum production system. The reservoir simulator may be supplied with descriptions of the system components (reservoirs, wells, facilities and their structure of inter-connectivity) and descriptions of the system inputs, initial conditions and operating constraints. (2/20-23)

These paragraphs mention that perforation may be involved in the establishment of a well. However, they never suggest “determining well perforation locations for wells”, and certainly not such determining as part of a computational method.

Furthermore, claims 48 recite “determining instantiated schedules using a third subset of the instantiated values and a third subset of the models”. The Examiner relies on TERAS page 155, first and second paragraphs, as evidence for the anticipation of this feature. These paragraphs read as follows:

Use the Production tab to build a production forecast for the primary production stream in the current well unit or for each well in a reservoir with multiple well units.

A production forecast has two components: (1) initial well production rate and (2) change in production rate after a period of time or after a volume has been produced (decline or an incline). To add complexity to your forecast, you can use multiple periods of decline or incline when building command sets.

These paragraphs refer to a user building a production forecast using a graphical user interface. They teach nothing about automatically determining instantiated schedules using instantiated values and models. Thus, claim 48 is patentably distinguished over the cited art.

CONCLUSION

Applicant submits the application is in condition for allowance, and an early notice to that effect is requested.

If any extensions of time (under 37 C.F.R. § 1.136) are necessary to prevent the above referenced application(s) from becoming abandoned, Applicant(s) hereby petition for such extensions. If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert & Goetzel PC Deposit Account No. 50-1505/5460-01101/JCH.

Respectfully submitted,

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